OTIS

Laboratory assessed as competent Body under
Annex XI Module H1 of the L.D 2014/33/EU

Fire Laboratory
New Equipment Center
Avenue des Montoires 45504 GIEN Cedex / France

Fire resistance Test of Building Elements

According to the EN 81-58 standard: 2003

RANGE REPORT N° 3711 - 45 – 50

Reference tests N°:	*Performed on the:*
3485-44-50	**10 November 2016**
3634-44-50	**22 March 2017**
3643-44-50	**12 April 2017**
3667-44-50	**22 June 2017**

Scope:

A range of lateral opening lift landing door with two non-insulated panels.

« PRIMA-PLUS » NF - SF - MRF / TLD version E 120

This document is a translation of the "Rapport de gamme" N° 3711-45-50 55"
In case of litigation, only French version prevails.

Requester :

OTIS
New Equipment Center
Avenue des Montoires
F – 45504 GIEN

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1 OBJECT OF THE REPORT

Qualification of a range of non insulated landing door, based on a set of classification tests, in compliance with the EN 81-58 standard: 2003 « Safety rules for the construction and installation of lifts – Examination and tests – Part 58: Landing door fire resistance test ».

2 LABORATORY

Nom: Door Test Center – OTIS

Address: Avenue des Montoires
45504 Gien

3 TEST REQUESTER

Nom: OTIS

Address: New Equipment Center
Avenue des Montoires
F-45504 Gien Cedex

4 FIRE RESISTANCE TESTS

Test Nr.	Date		Free passage dimensions
3485-44-50	10 November 2016	MRF 150 TLD	900 x 2100 mm (w x h)
3634-44-50	22 March 2017	MRF 100 TLD	900 x 2100 mm (w x h)
3643-44-50	12 April 2017	MRF 150 CLD	900 x 2100 mm (w x h)
3667-44-50	22 June 2017	MRF150 TLD	900 x 2100 mm (w x h)

5 REFERENCE

Reference: **« PRIMA PLUS » TLD**

Provenance: **OTIS**
New Equipment Center
Avenue des Montoires
F – 45504 GIEN

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6 DESCRIPTION

6.1 GENERAL

The elements, objects in this range report are non-insulated lift landing doors « PRIMA PLUS - TLD E 120 » with two lateral opening panels on following configurations :

- ✓ MRF 150 (Panels and peripheral band of 150 mm are only fire exposed)
- ✓ MRF 100 (Panels and peripheral band of 100 mm are only fire exposed)
- ✓ SF facia (Panels and peripheral band of 20 mm are only fire exposed)
- ✓ NF facia (Only panels are fire exposed)

They are composed of:

- A structural frame composed of :
  - ✓ Columns 1.2 mm thick when Stainless steel
  - ✓ Columns 1.5 mm thick when Pre-paint & Steel “Skinplate”
  - ✓ A structural lintel 1.5 mm thick
  - ✓ A threshold support 2.5 mm thick with an aluminium guide rail.

- Two panels in folded metal sheet thickness 1.2 mm (Stainless steel) or 1.5 mm (Pre-paint & Steel “Skinplate”) hung on the upper side on the header and guided via shoes, sliding in the sill grooves.

- A leaf drive and locking mechanism assembly.

- An electrical unlocking detection device “KS”. (Key Switch Option)
- An unlocking device base on a twine option.
- Human interfaces. (call button / button boxes / indicators)
- Closing column integrating the lift command and control functions.

They may be derived in different finishes and fitted with different accessories.

They can be installed on the landing or in the hoistway.

Free height passage of the door will be named OPH.

Free width passage of the door will be named OP.

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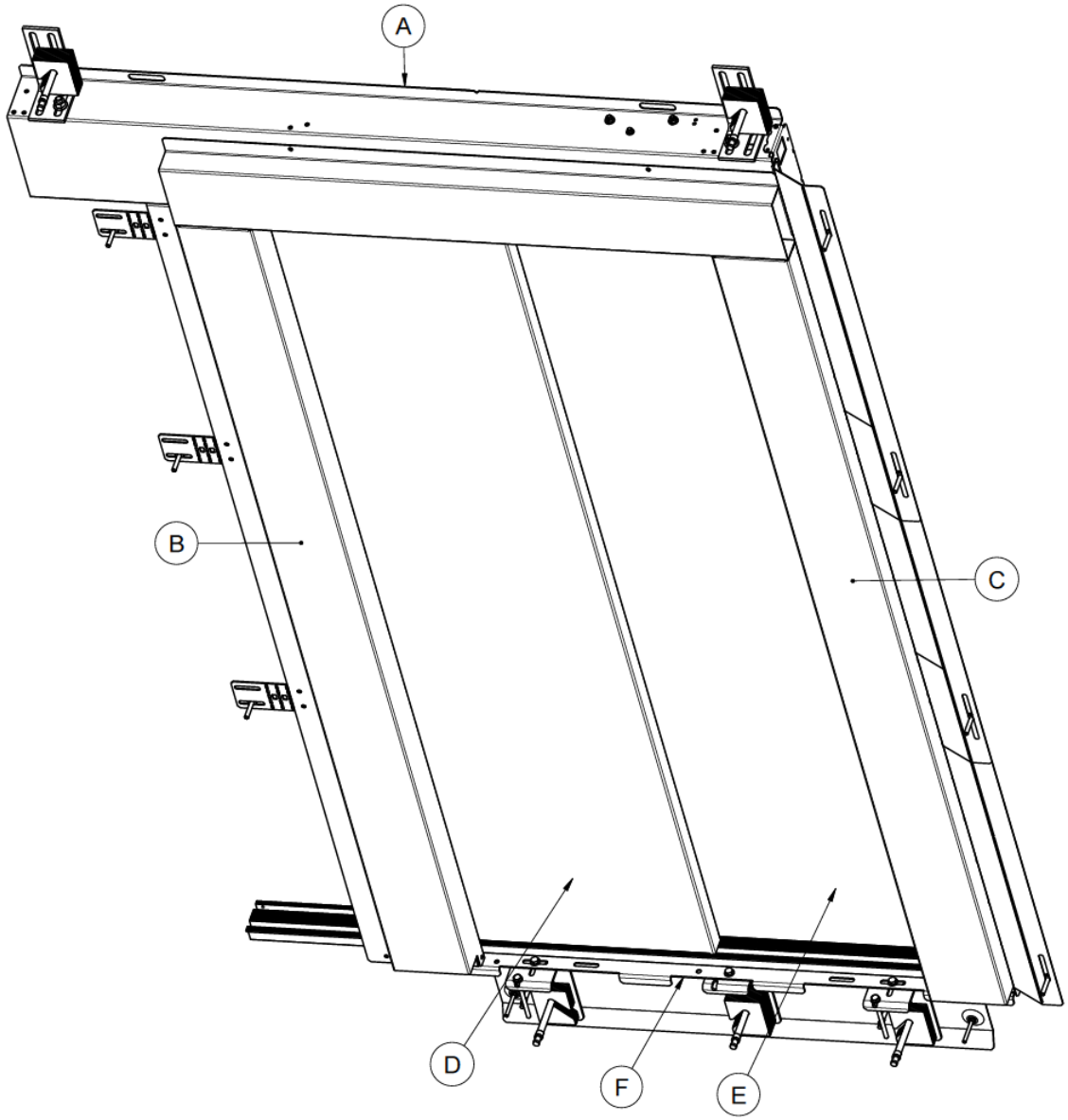
6.2 DETAILED DESCRIPTION

6.2.1 General description

A: Lintel
B: Opening column
C: Closing column
D: Slow panel
E: Fast panel
F: Sill bracket



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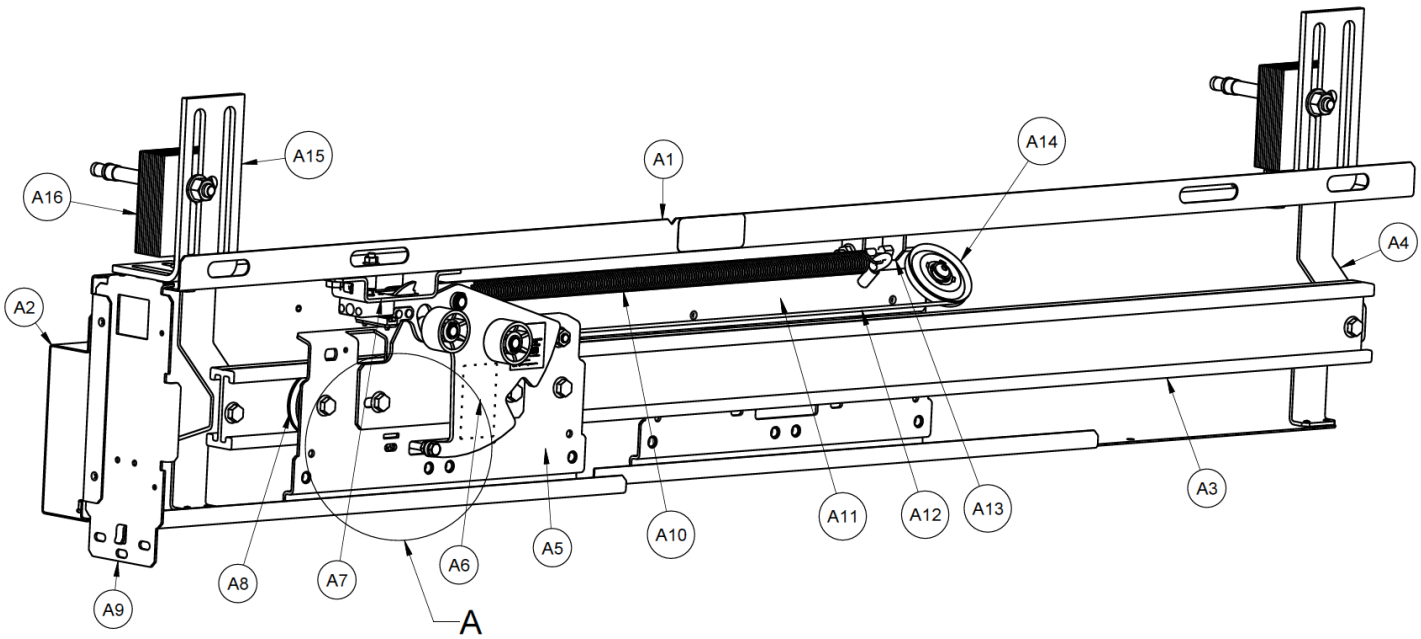
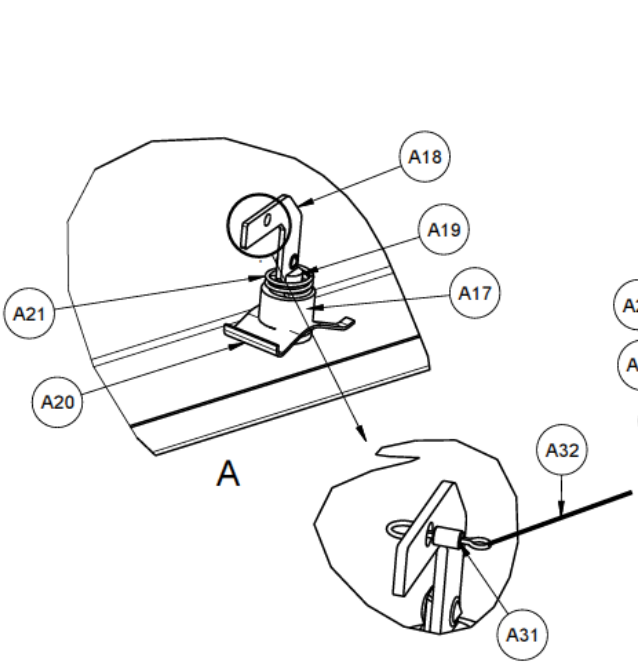
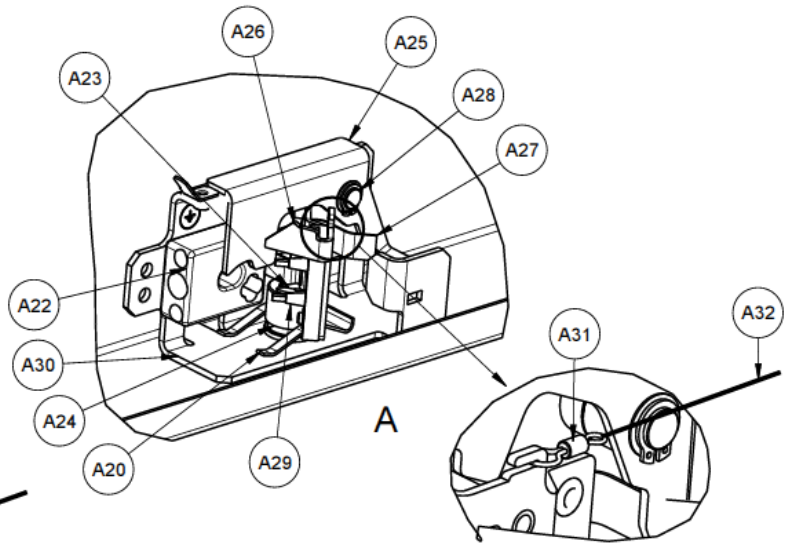
6.2.2 Lintel (A)







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DESIGNATION	DESCRIPTION
A1. Structural lintel	
Material	Galvanized steel
Thickness	1.5 mm
Upper angle fastening	1 bolt M12 x 30 per angle
Column fastening	3 bolts M6 x 16 per column
A2. Decorative lintel	
Material	Stainless steel or Pre-paint steel or Steel "Skinplate"
Thickness	1.2 or 1.5 mm
Structural lintel fastening	4 steel rivets Ø4 mm
A3. Track	
Material	Aluminium
Bracket fastening	1 bolt M8 x 16 per bracket
A4. Track bracket	
Material	Galvanized steel
Thickness	3 mm
Structural lintel fastening	5 steel rivets Ø4 mm
A5. Hanger	Quantity = 2 per door
Material	Galvanized steel
Thickness	2.5 mm
A6. Interlock	
Material	Galvanized steel
Thickness of bracket fastening	3 mm
Thickness of lever	4 mm
Pivots	Quantity = 3 per interlock Ø10 mm (Steel)
Rollers	Quantity = 2 per interlock Ø38 mm (Plastic PA MB 3000)
Shunt bracket	Thickness = 2 mm (Galvanized steel)
Shunt	ASTRA PA 02 18 (Plastic nylon-V0)
Stop	Quantity = 1 per interlock (Rubber)
Unlocking screw	Quantity = 1 per interlock ;1 bolt M6 x 45
Fast Hanger fastening	2 bolts M8 x 16
A7. Latch	
Material	Galvanized steel
Thickness of bracket	3 mm
Safety switch	ASTRA AS 09 B
Structural lintel fastening	2 bolts M8 x 16
Safety switch fastening on latch	1 bolt M4 x 12
A8. Roller	Quantity = 2 per hanger
Material of tread	Plastic PA MB 3000
Material of frame	Galvanized steel
Hanger fastening	2 screws M8 x 16
A9. Support	
Material	Galvanized steel
Thickness	2 mm
Structural lintel fastening	3 steel rivets Ø4 mm
Closing column fastening	1 bolt M6 x 16
A10. Spring	
Material	Spring steel
Structural lintel & slow hanger fastening	2 pitons bolts M6 x 25
A11. Air cord bracket	
Material	Galvanized steel
Thickness	2 mm
Slow hanger fastening	2 steel rivets Ø4 mm

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DESIGNATION	DESCRIPTION
A12. Air cord	
Material	Steel rope
Diameter	Ø 3.2 mm
A13. Air cord fixed bracket	
Material	Galvanized steel
Thickness	3 mm
Structural lintel fastening	2 steel rivets Ø4 mm
A14. Sheave	
Material	Galvanized steel
Air cord bracket fastening	1 bolt M8 x 25
A15. Upper angle	Quantity = 2 per door
Material	Galvanized steel
Thickness	6 mm
Wall fastening	1 dowel HILTI HSA M12 x145
Header fastening	1 bolt M12 x 30
A16. Shims	
Material	Galvanized steel
Thickness	1 et 2,5 mm
A17. Bushing	
Material	Middle steel with electrogalvanized finish
Body diameter	19.8 mm
Collar diameter	25 mm
A18. Unlocking lever	
Material	Galvanized steel
Thickness	2 mm
Triangle axle fastening	1 steel rivet Ø4
A19. Triangle axle	
Material	Middle steel with electrogalvanized finish
Body diameter	Ø9.5 mm
A20. Spring fork	
Material	Spring steel
Bushing fastening	Groove
A21. Spring	
Material	Spring steel
Bushing & triangle axle fastening	Holes on bushing & triangle axle
A22. Safety switch	
Material	ASTRA AS 09 B
Fixed bracket fastening	1 bolt M4 x 10
A23. Triangle axle	
Material	Middle steel with electrogalvanized finish
Body diameter	Ø9.5 mm
Bushing fastening	Clip Ø8 mm
A24. Bushing	
Material	Middle steel with electrogalvanized finish
Body diameter	18.8 mm
Collar diameter	25 mm
A25. Locking lever	
Material	Galvanized steel
Thickness	2 mm
Integrated axle	Ø15mm in middle steel with electrogalvanized finish
Pivot axle fastening	Clip Ø8 mm
A26. Unlocking lever	
Material	Galvanized steel
Thickness	2 mm
Triangle axle fastening	2 steel rivets Ø4 mm

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DESIGNATION	DESCRIPTION
A27. Spring languet	
Material	Spring steel
Thickness	0.7 mm
Pedestal bracket fastening	2 steel rivets Ø4 mm
A28. Pivot axle	
Material	Middle steel with electrogalvanized finish
Body diameter	Ø8 mm
Pedestal bracket fastening	By snap-riveting
A29. Shunt	
Material	ASTRA PA 02 18
Unlocking lever fastening	2 bolts M4 x 10
A30. Pedestal bracket	
Material	Galvanized steel
Thickness	2.5 mm
Pedestal fastening	With spring fork ITEM 20 in bushing groove
A31. Unlocking device Swivel	
Material	Middle steel with finish
A32. Unlocking device	
Material	Wire braid

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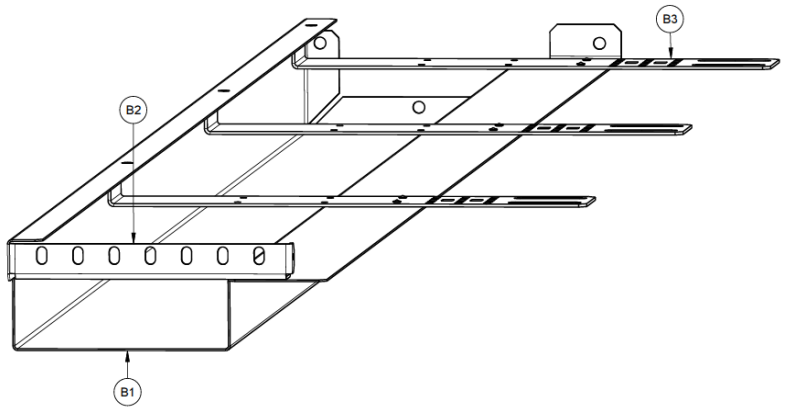
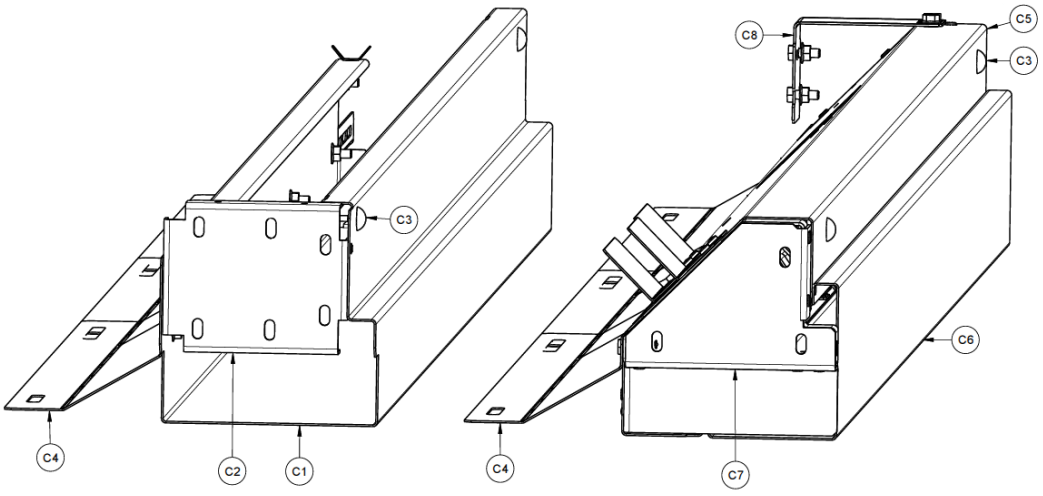
6.2.3 Opening column (B)



DESIGNATION	DESCRIPTION
B1. Opening column	
Material	Stainless steel or Pre-paint steel or Steel "Skinplate"
Thickness	1.2 or 1.5 mm
Lintel fastening	3 bolts M6 x 16
B2. Threshold interface bracket	
Material	Galvanized steel
Thickness	2 mm
Column fastening	3 steel rivets Ø4 mm
Threshold fastening	2 screws M6 x 16
B3. Bracket	Quantity = 3 per column
Material	Galvanized steel
Thickness	2 mm
Column fastening	3 steel rivets Ø4 mm
Wall fastening	1 screw HUS3-H6x40

6.2.4 Closing column (C)



DESIGNATION	DESCRIPTION
C1. Closing column	
Material	Stainless steel or Pre-paint steel or Steel "Skinplate"
Thickness	1.2 or 1.5 mm
Lintel fastening	3 bolts M6 x 16
Cheek fastening	1 bolt M6 x 16
C2. Threshold interface bracket	
Material	Galvanized steel
Thickness	2 mm
Column fastening	3 steel rivets Ø4 mm
Threshold fastening	3 screws M6 x 16
C3. Stop	Quantity = 2 per column
Material	Rubber
C4. Sealing bracket (Only if facia MRF150 & hoistway mounting)	Quantity = 3 per door
Material	Galvanized steel
Thickness	1.2 mm
Wall fastening	4 screws HUS3-H6x40
Column or E&I panel fastening	4 bolts M6 x 16
C5. Body of E&I panel (Option only in facia MRF150)	
Material	Stainless steel or Pre-paint steel or Steel "Skinplate"
Thickness	1.2 or 1.5 mm
Lintel fastening	3 bolts M6 x 16
C6. Door of E&I panel (Option only in facia MRF150)	
Material	Stainless steel or Pre-paint steel or Steel "Skinplate"
Thickness	1.2 or 1.5 mm
C7. Threshold interface bracket (Option only in facia MRF150)	
Material	Galvanized steel
Thickness	2 mm
E&I fastening	7 steel rivets Ø4 mm
Threshold fastening	3 screws M6 x 16
C8. Cheek bracket (Option only in facia MRF150)	
Material	Galvanized steel
Thickness	1.5 mm
E&I fastening	2 screws M6 x 16
Cheek fastening	2 bolts M6 x 16

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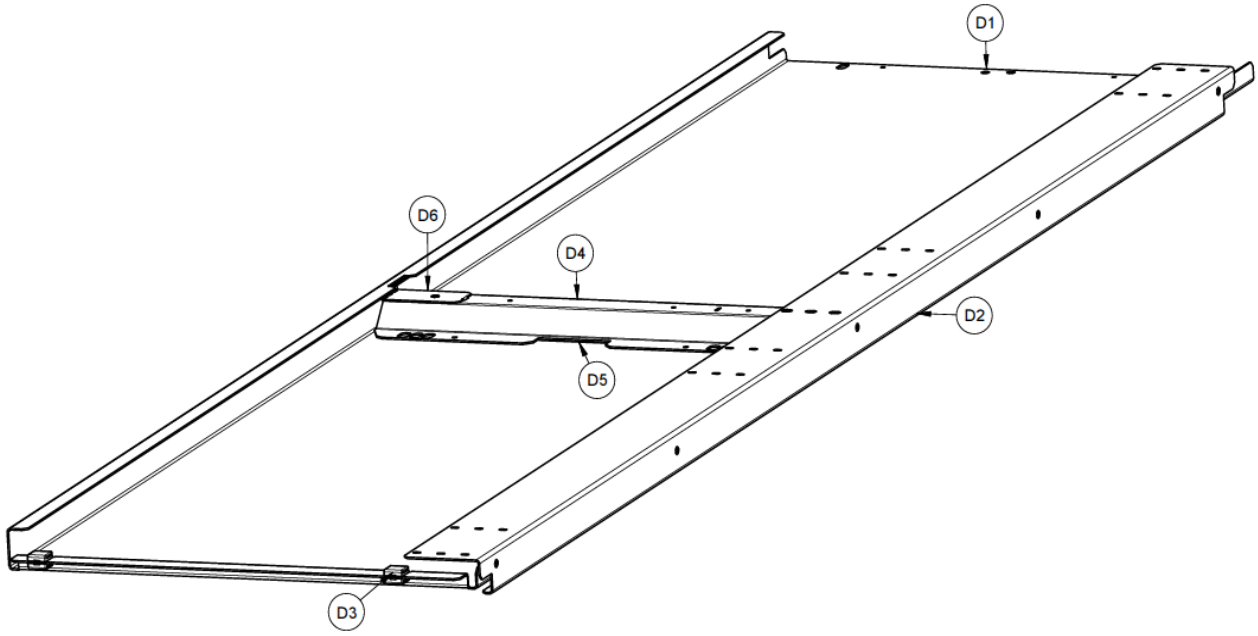
6.2.5 Slow panel (D)



DESIGNATION	DESCRIPTION
D1. Slow panel	
Material	Stainless steel or Pre-paint steel or Steel "Skinplate"
Thickness	1.2 or 1.5 mm
Hanger fastening	3 screws M8 x 16 + locking with 2 steel rivets Ø4 mm
D2. Labyrinth	
Material	Galvanized steel
Thickness	1.5 mm
Panel fastening	5 steel rivets Ø4 mm
Stiffener fastening	1 steel rivet Ø4 mm
D3. Guide shoe	Quantity = 2 per panel
Material	Plastic PA Pébax
D4. Stiffener	Quantity = variable => 0 to 1
Material	Galvanized steel
Thickness	1.5 mm
Bracket fastening	1 steel rivet Ø4 mm
D5. Double-faced adhesive	Quantity = 2 x L=75 per stiffener
Material	3M VHB (TM) 5958 FR
Thickness	1mm
D6. Bracket	Quantity = variable => 0 to 1
Material	Galvanized steel
Thickness	1.2 mm
Stiffener fastening	1 steel rivet Ø4 mm

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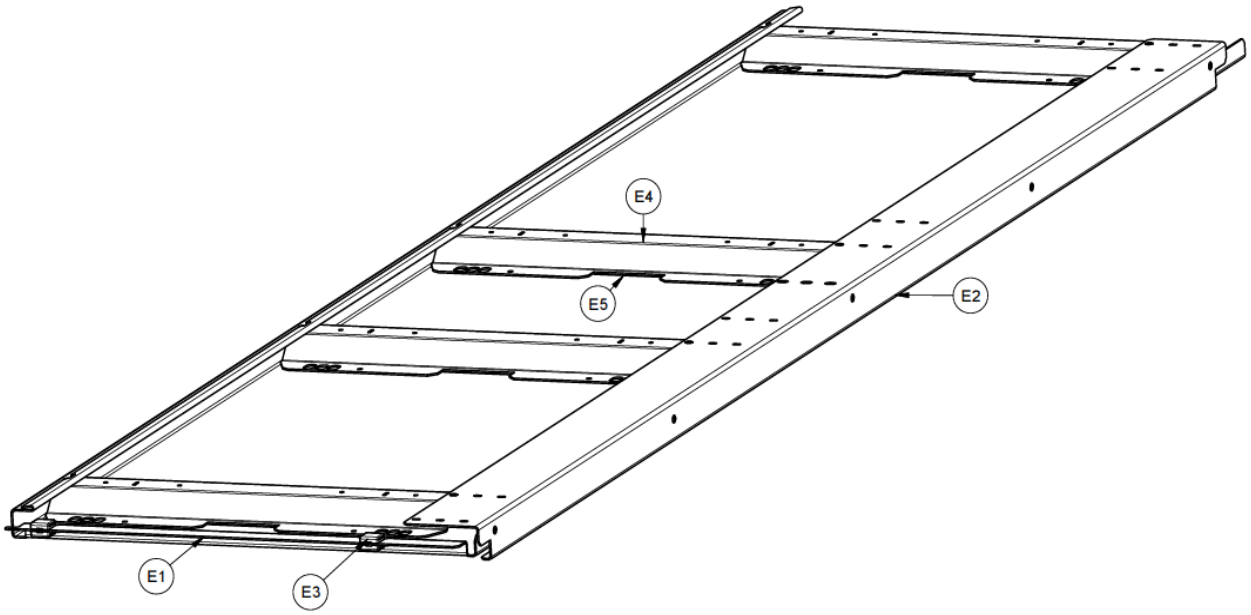
6.2.6 Fast panel (E)



DESIGNATION	DESCRIPTION
E1. Fast panel	
Material	Stainless steel or Pre-paint steel or Steel "Skinplate"
Thickness	1.2 or 1.5 mm
Hanger fastening	3 screws M8 x 16 + locking with 2 steel rivets Ø4 mm
E2. Labyrinth	
Material	Galvanized steel
Thickness	1.5 mm
Panel fastening	5 steel rivets Ø4 mm
Stiffener fastening	1 steel rivet Ø4 mm per stiffener
E3. Guide shoe	Quantity = 2 per panel
Material	Plastic PA Pébax
E4. Stiffener	Quantity = variable => 0 to 4
Material	Galvanized steel
Thickness	1.5 mm
Panel fastening	1 steel rivet Ø4 per stiffener
E5. Double-faced adhesive	Quantity = 2 x L=75 per stiffener
Material	3M VHB (TM) 5958 FR
Thickness	1 mm

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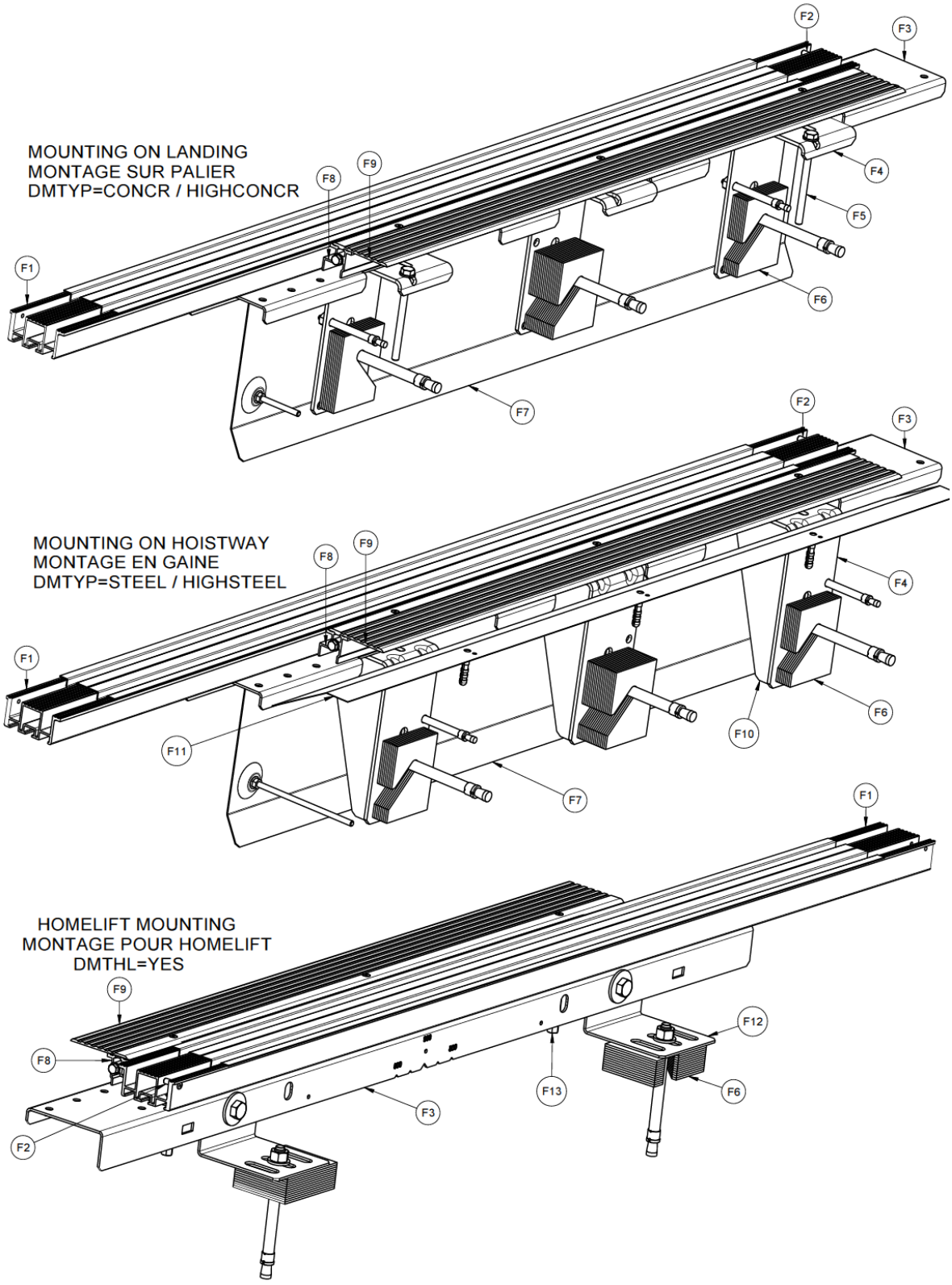
6.2.7 Threshold bracket (F)



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DESIGNATION	DESCRIPTION
F1. Threshold	
Material	Aluminium
Threshold bracket fastening	4 bolts M8 x 16
F2. Mechanical stop	
Material	Middle steel with electrogalvanized finish
Thickness	0.8 mm
Threshold fastening	1 steel rivet Ø4 mm
F3. Threshold bracket	
Material	Galvanized steel
Thickness	2.5 mm
F4. Lower angle	Quantity = 3
Material	Galvanized steel
Thickness	4 mm
Wall fastening	1 dowel HILTI HSA M12 x145
Threshold bracket fastening	1 bolt M8 x 20
Locking fastening	2 dowels HILTI HSA M8 x 85 on extremes angles
F5. Rear wall locking (Hoistway mounting)	Quantity = 2
Material	2 screws HUS3-H6x100
F6. Shims	
Material	Galvanized steel
Thickness	1 et 2,5 mm
F7. Toe guard	
Material	Galvanized steel
Thickness	1.2 mm
Threshold bracket fastening	3 steel rivets Ø4 mm
Wall supporting	2 bolts M6 x 150
F8. Additive threshold option	
Material	Aluminium
Columns fastening	2 screws M6 x 16
F9. Additive threshold option	
Material	Aluminium
Threshold fastening on item F8	3 bolts M4 x 10
F10. Angle stiffener (Hoistway mounting)	Quantity = 3 per threshold bracket
Material	Galvanized steel
Thickness	4 mm
F11. Sealing sheet steel (hoistway mounting)	
Material	Galvanized steel
Thickness	0.5 mm
Fastening	3 plastic dowels & screws
F12. Angle (Home lift mounting)	Quantity = 2 per threshold bracket
Material	Galvanized steel
Thickness	2.5 mm
Threshold bracket fastening	2 bolts M12 x 25 + 2 bolts M8 x 65
F13. Threshold bracket support (Home lift mounting)	Quantity = 2 per threshold bracket
Material	2 extension nuts M8 x 50

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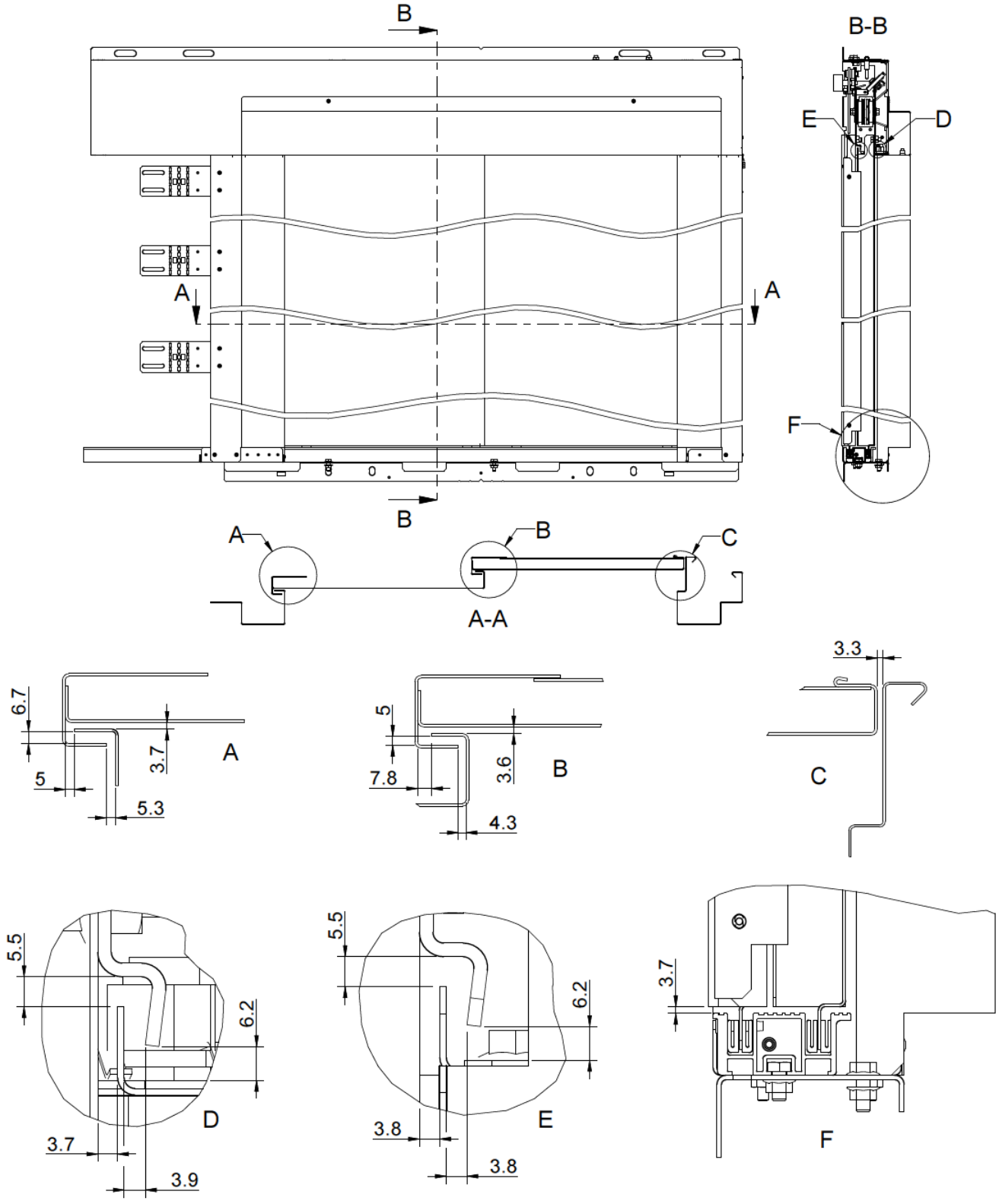
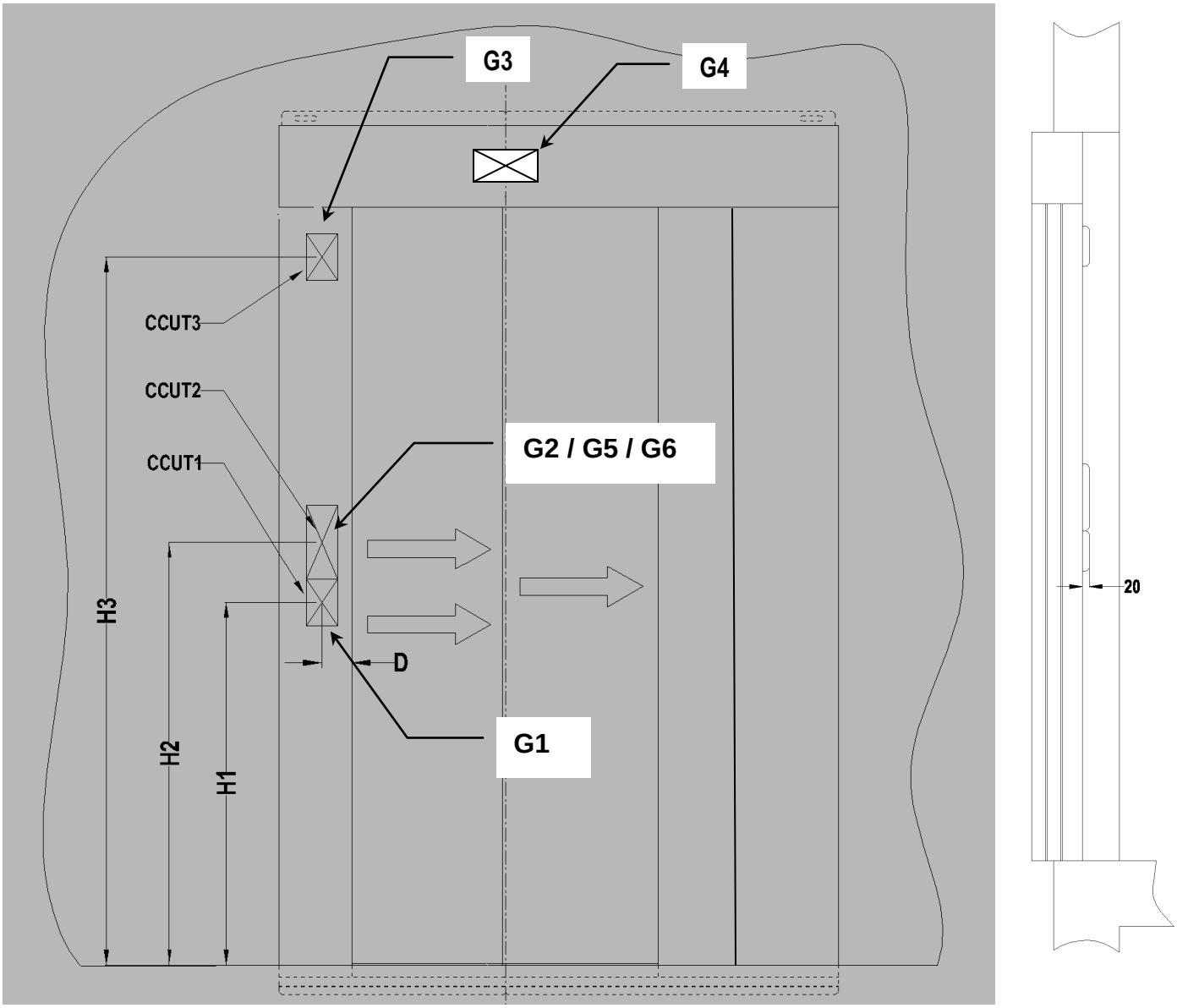
6.3 DOOR CLEARANCES AND LABYRINTH (Nominal dimensions)



6.4 OPTIONS

6.4.1 Human interfaces (G)



The H1 / H2 / H3 distances are variable, as related with different normative criteria.

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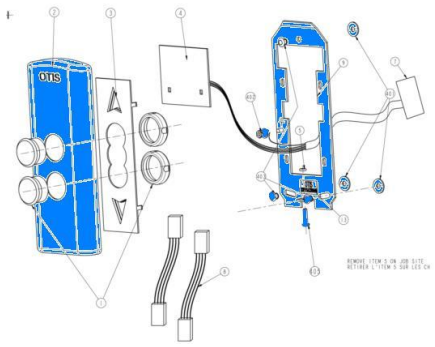
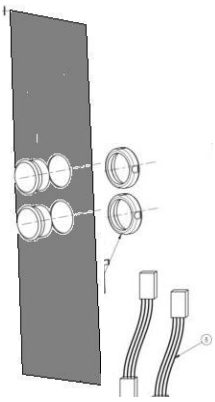
DESIGNATION	DESCRIPTION
G1. Optional button box	
Cover finish	Steel Stainless
Dimensions	83 x 123 x 20 mm
Fastening to the column	3 rivets Steel Ø 4.8 x 8.5 or 3 bolts HM5 x 12
G2. Call button (Box or integrated)	
Cover finish	Steel Stainless
Dimensions	83 x 203 x 20 mm
Fastening to the column	3 rivets Steel Ø 4.8 x 8.5 or 3 bolts HM5 x 12
G3. Optional vertical position indicator	
Cover finish	Steel Stainless
Dimensions	83 x 123 x 20 mm
Fastening to the column	4 rivets Steel Ø 4.8 x 8.5 or 4 bolts HM5 x 12
G4. Optional vertical position indicator	
Cover finish	Steel Stainless
Dimensions	220 x 111 x 30 mm
Fastening to the column	4 self tapping screws Ø 3.5 x 9.5
G5. Call button 28mm (Integrated)	
Dimensions	Button Ø 28 mm identical to the box option.
Fastening to the column	Directly fixed to the column
G6. Call button 36mm (Integrated)	
Button	Ø 36 mm – PC (Polycarbonate) / BST
Structural material	ABS + Stainless steel SUS 304
Button protection guard	Galvanised steel
Dimensions	96 x 80 x 145, thickness 0.8 mm
Fastening to the column	Directly fixed to the column



Option with buttons box
(Item G2)



Option with buttons integrated to the column (Item G5)

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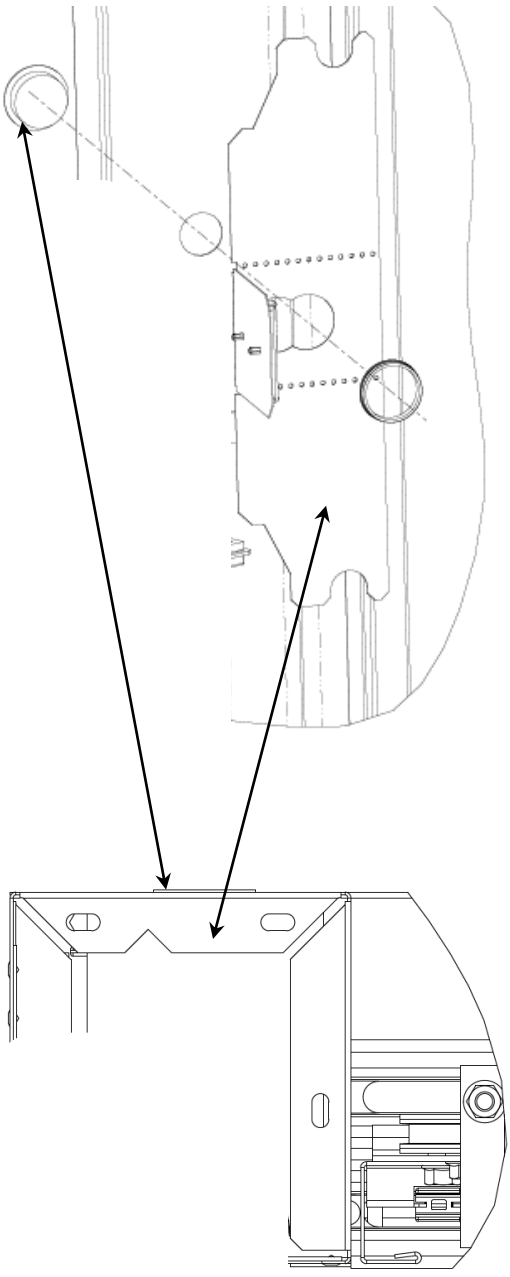
Option with integrated button to the column (Item G6)



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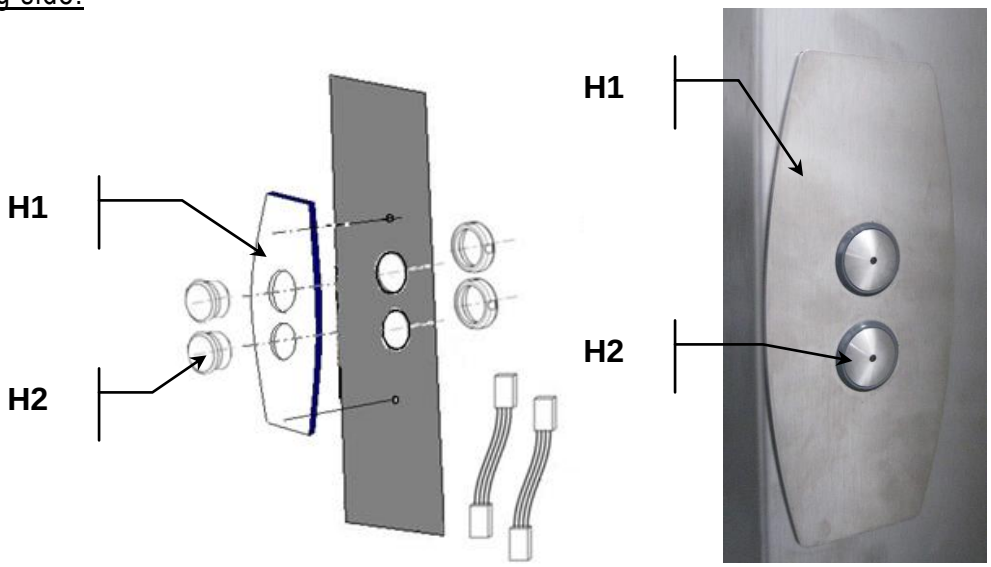
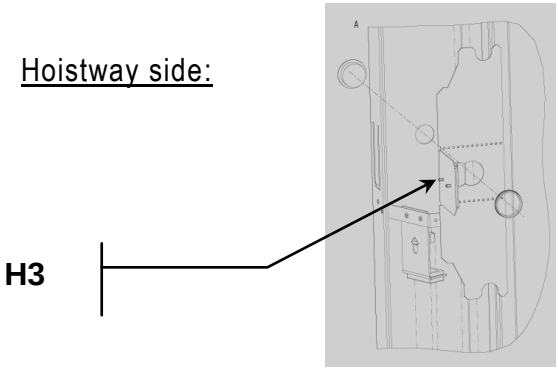
6.4.2 Human interfaces / S-LINE Aesthetic (H)

6.4.2.1 Integrated buttons

Landing side:



Hoistway side:



DESIGNATION	DESCRIPTION
H1. Aesthetic plate	
Cover finish	Steel Stainless
Thickness	2 mm
Fastening to the column	Between button and column
H2. Call button 28 mm	
Dimensions	Button Ø28 mm
Fastening to the column	Directly fixed to the column
H3. Cover and button elecrical interface board support	
Cover finish	Mild steel
Dimensions	Foldable part / thickness 1 mm
Fastening to the column	Directly fixed to the column

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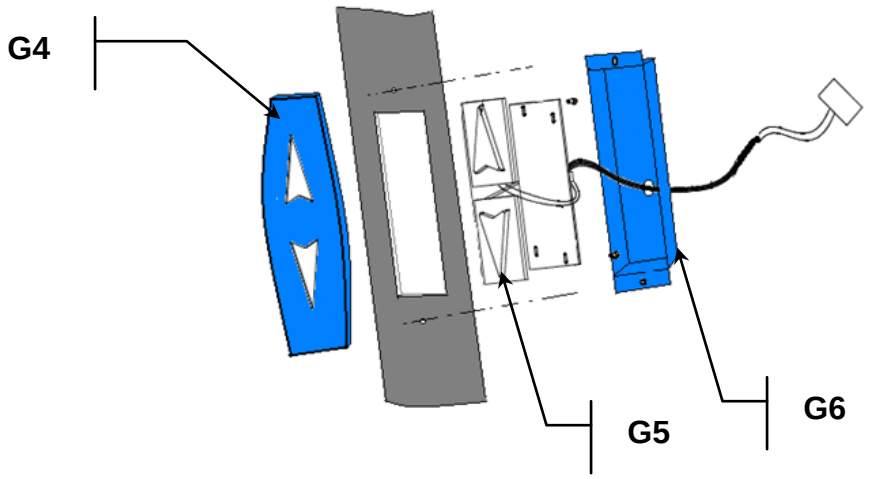
6.4.2.2 Landing display. (SHL)

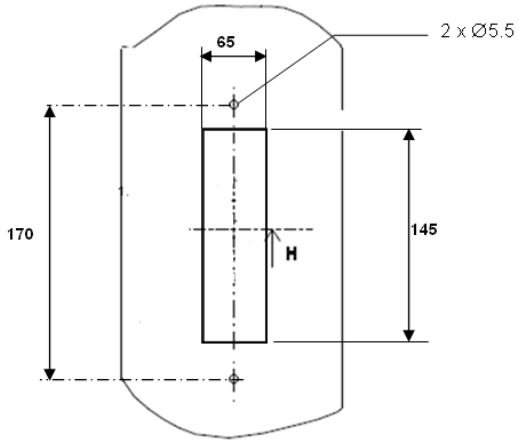
A metallic cover (Item G6) is used for display protection and also to prevent leakage effect during fire test, due to important column cut-out. (Fixing by the 2 welded pins M5)

Exposed side of landing door panels (Leaves located at the landing side) can be covered by a steel plate (Steel lining for specifics jobsite aesthetic needs) whose thickness limited by:



DESIGNATION	DESCRIPTION
H4. Aesthetic plate Cover finish Thickness Fastening to the column	 Steel Stainless 2 mm 2 welded pins M5
H5. Arrows Finish Fastening to the column	 Plastic material 2 welded pins M5
H6. Cover Cover finish Fastening to the column	 Mild steel thickness 1 mm 2 welded pins M5

A door column cut-out 65x145 is necessary for the landing display PCB integration.
Column display position is unchanged.



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6.4.3 Cladding option (Adding of a steel lining)

Fire exposed side (landing side) of the door panels (Leaves located at the landing side) can be covered by a steel plate (Steel lining for local customer aesthetic needs) fixed by glue CONTACT 21 (ALPHA), at an approximate rate of 0.3 l/m², whose thickness limited by:

- Total panel weight shall not exceed 35 kg (Structural panel + additional aesthetic steel cladding part), based on PRIMA Plus locking device L.D. 2014/33/UE CE certification scope.

- Self closing shall be garanted in order to have correct closing and locking landing door operation when manually open.The steel plate shall no have excessive thickness in contradiction with normal operation and self closing requirement, as requested by EN81-20:2014 §5.3.9.3.4

Indeed, the glue CONTACT 21 (ALPHA) loses its adeshive skills at 70°C approximately. The steel plate is fixed of the exposed side oft the door (landing side), and will fall down during the first minutes of test.

Consequently, the adding of the steel plate will not modify the fire behavior of the doors.

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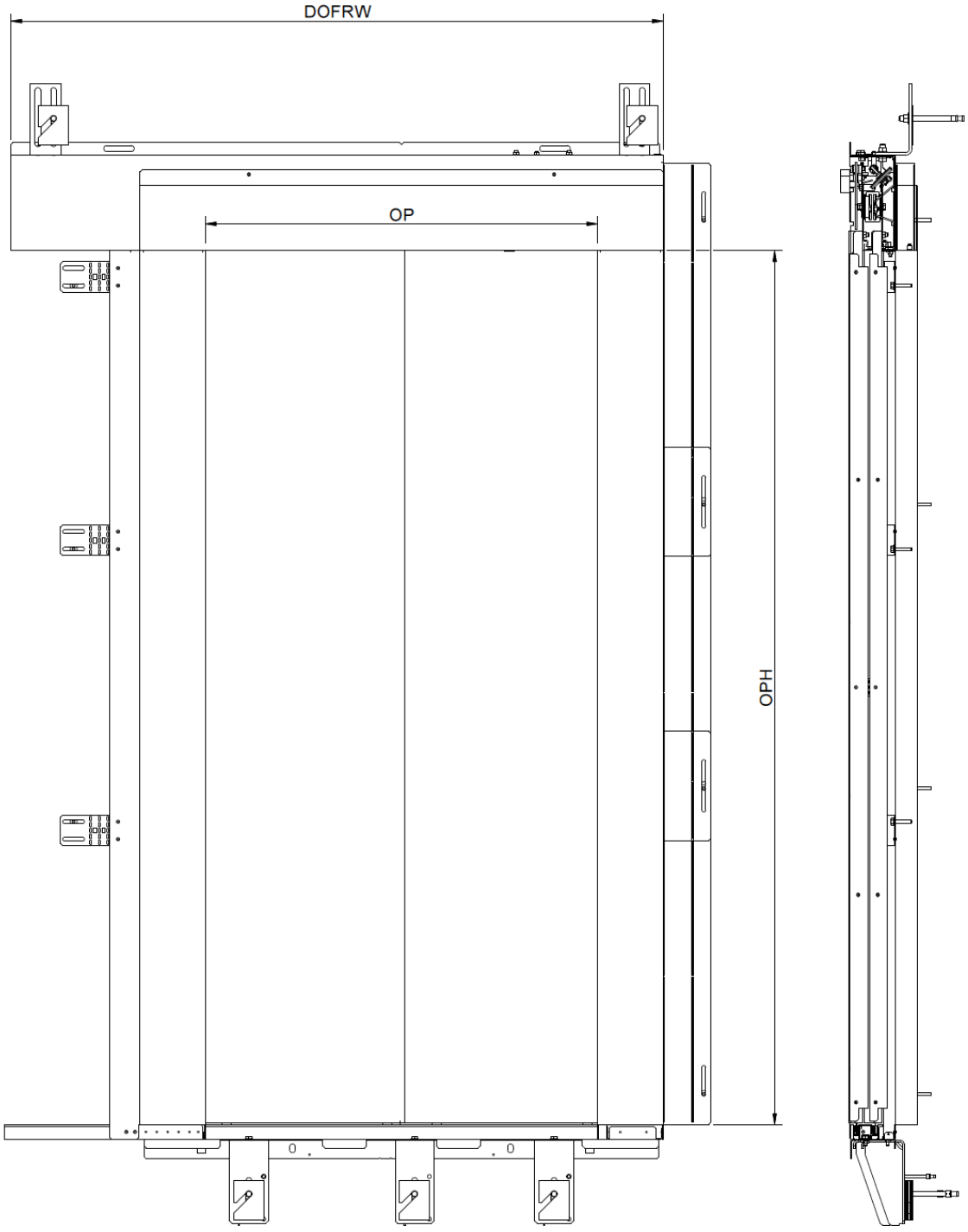
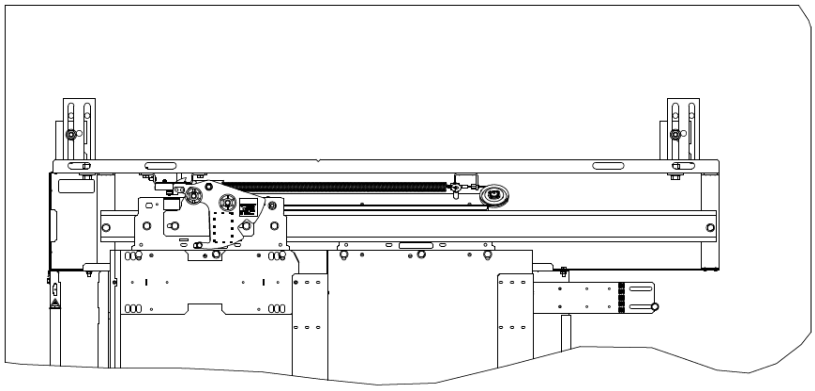
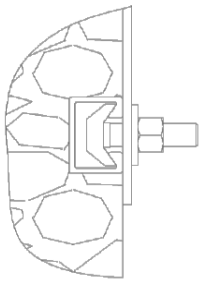
6.5 DOOR BUILDING INTERFACES

6.5.1 General description

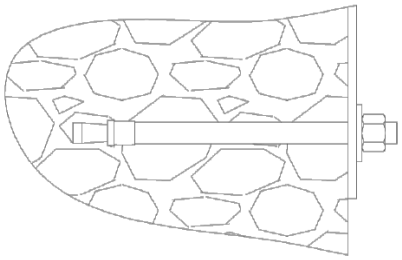




The angle pieces are fastened to the building either by M12x145 dowels, or JORDAHL M12x80 screws, according to the views below.



JORDHAL SCREW / VIS JORDHAL



DOWEL / CHEVILLE

Fire resistance integrity of the PRIMA PLUS E120 door is validated based on building interfaces mounting limits described below.

According to the building gaps, that implies to have a peripheral finition being able to be made out of plaster, mortar , cement , concrete or other materials of same densities (See following pictures representing a completion minimum) being located between line [A;B] and the edge external of the column, that within the authorized limits maximum.

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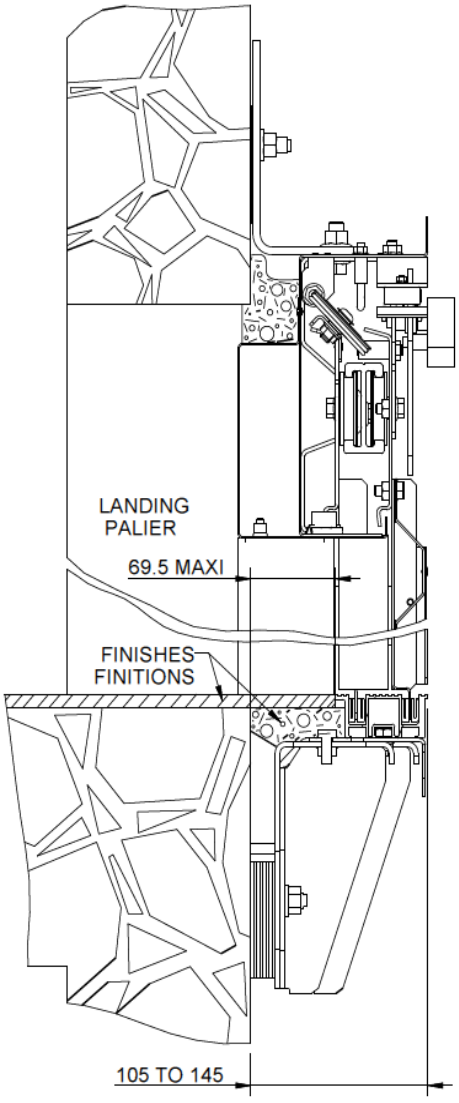
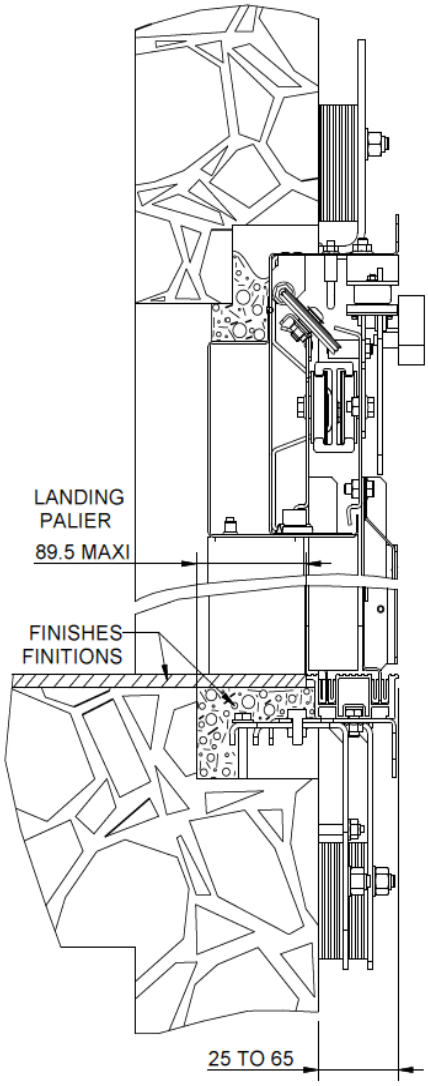
6.5.2 Building interfaces

3 types of angle pieces are possible for fastening the sill:

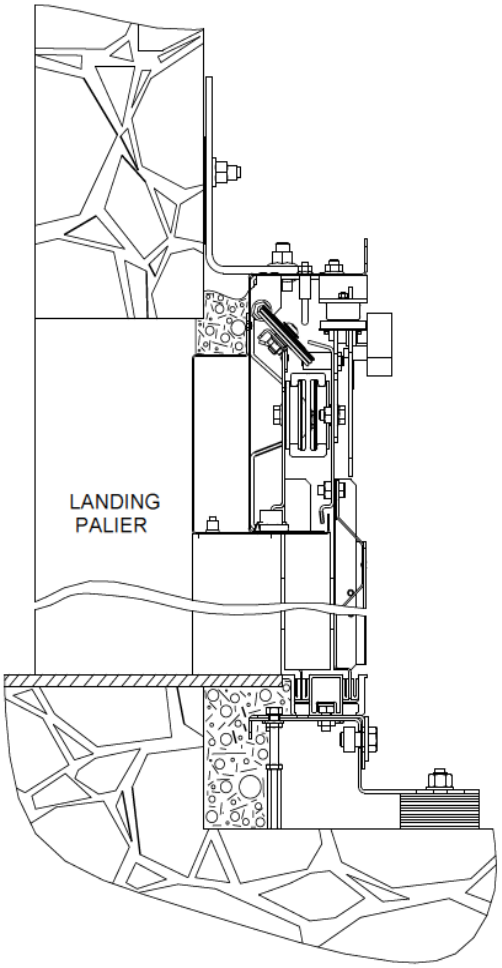
- Sill angle + shim for for mounting on landing.
- Sill angle + stiffener + shim for for mounting in hoistway.
- Sill angle + shim for specific mounting for homelift.



MOUNTING ON HOISTWAY
MONTAGE EN GAINE
DMTYP = STEEL / HIGHSTEEL



MOUNTING ON LANDING
MONTAGE SUR PALIER
DMTYP = CONCR / HIGHCONCR



HOMELIFT MOUNTING
MONTAGE POUR HOMELIFT
DMTHL = YES

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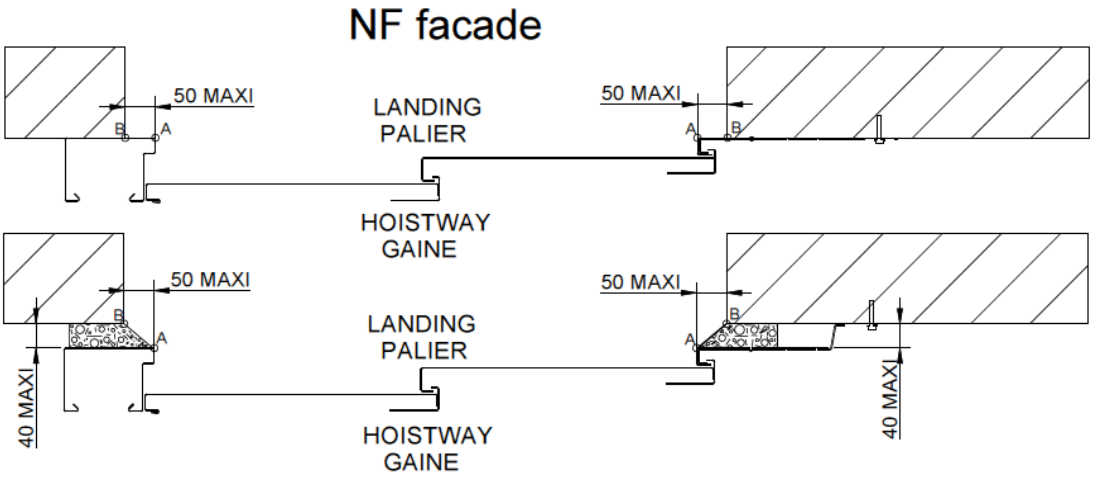
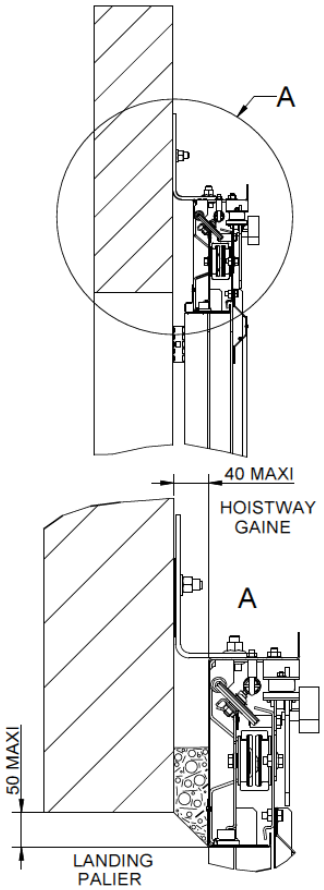
6.5.3 Facades & finishing details

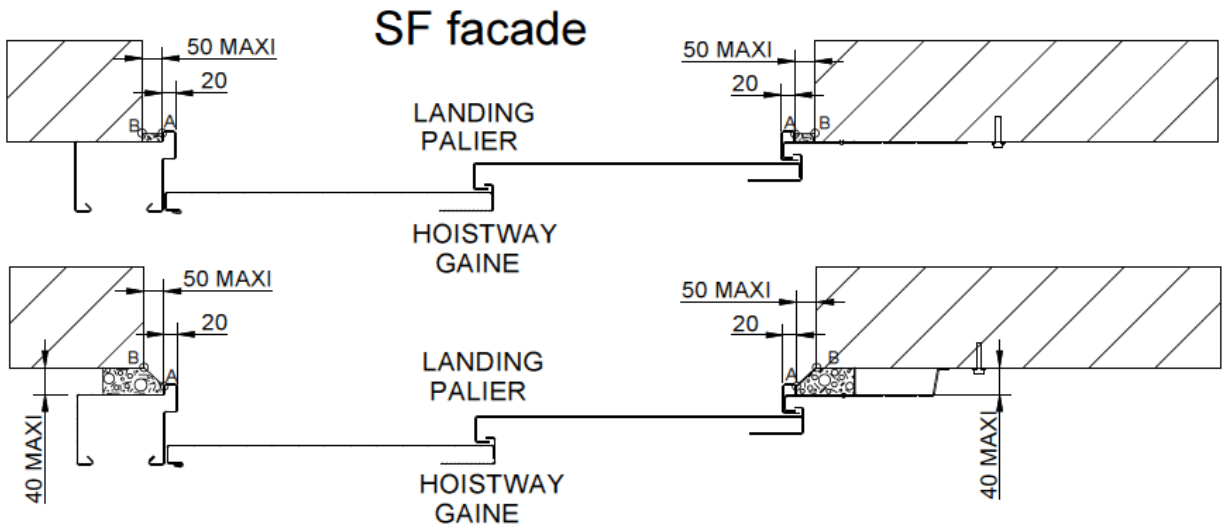
6.5.3.1 Hoistway mounting

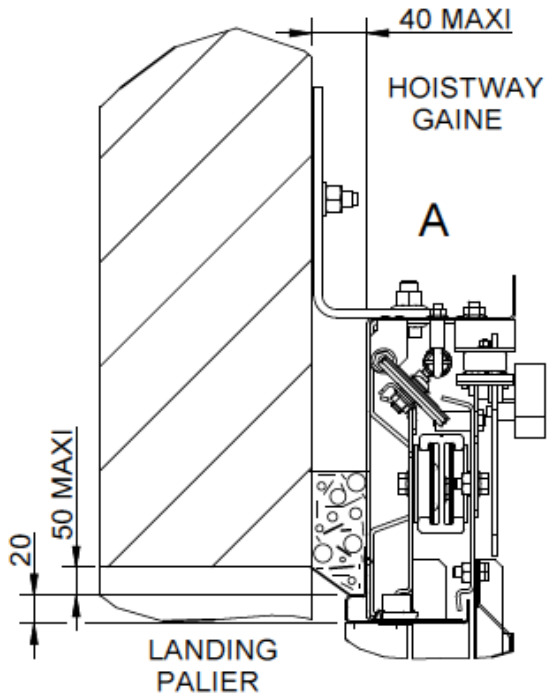
6.5.3.1.1 NF facia



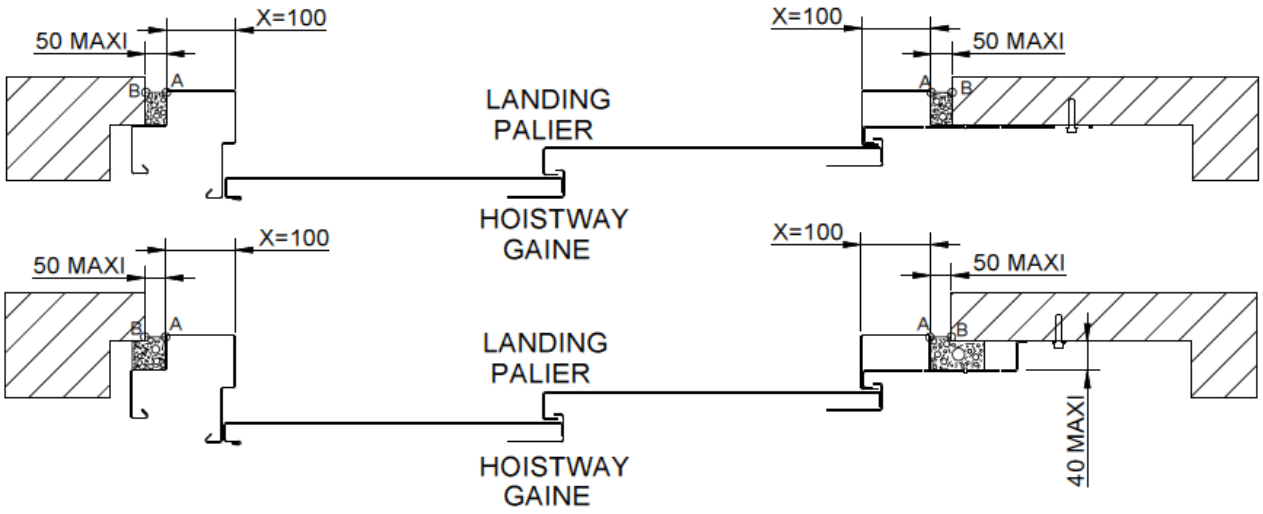


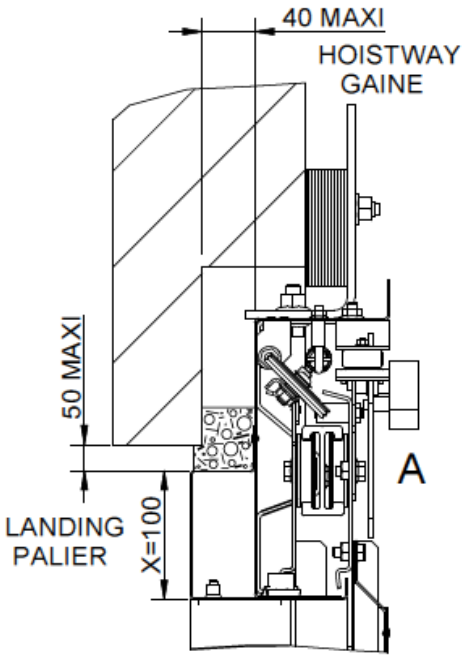
6.5.3.1.2 SF facia



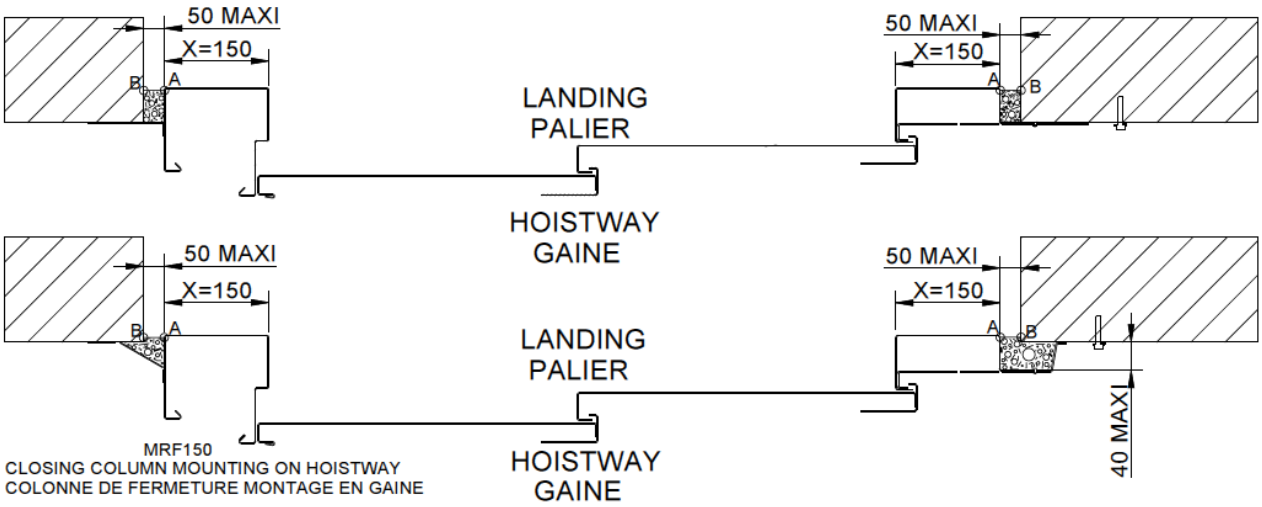


6.5.3.1.3 MRF 100 facia

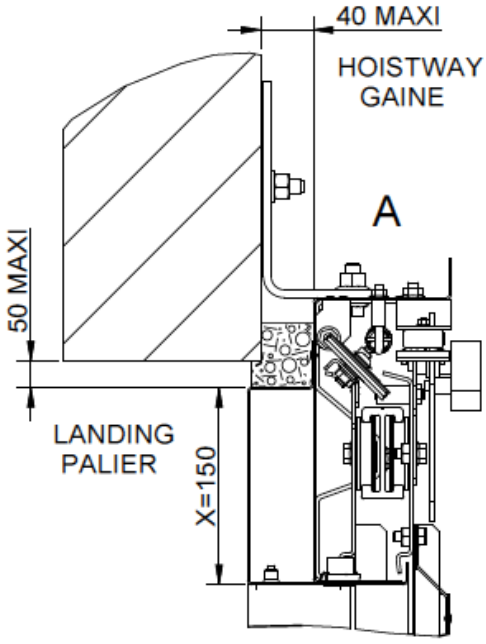




6.5.3.1.4 MRF 150 facia

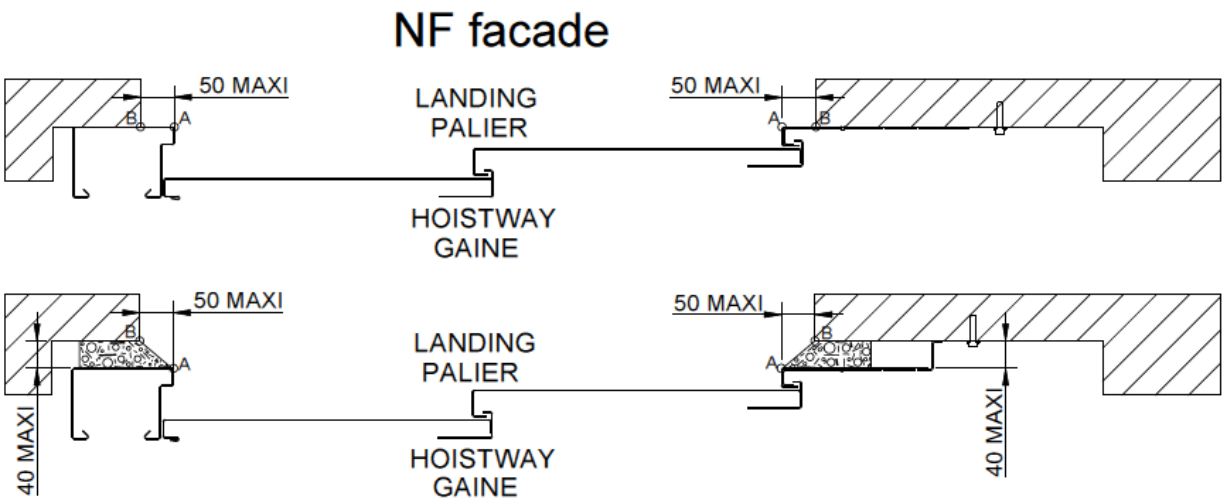


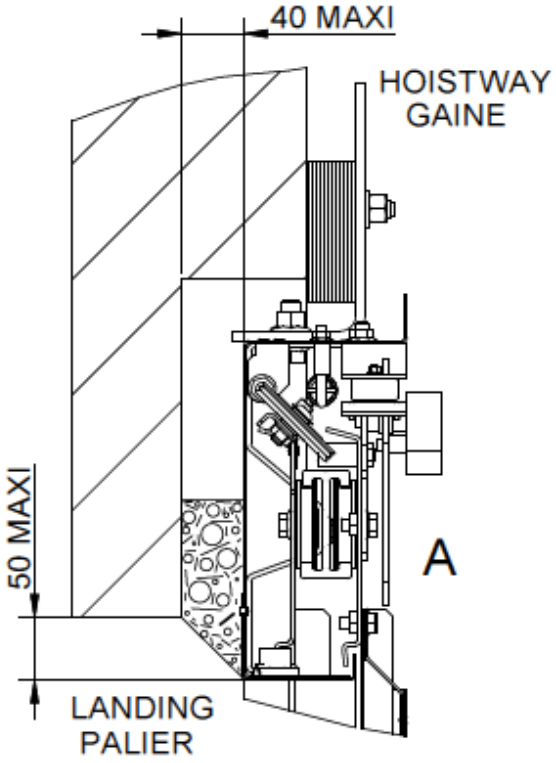
MRF150
CLOSING COLUMN MOUNTING ON HOISTWAY
COLONNE DE FERMETURE MONTAGE EN GAINE



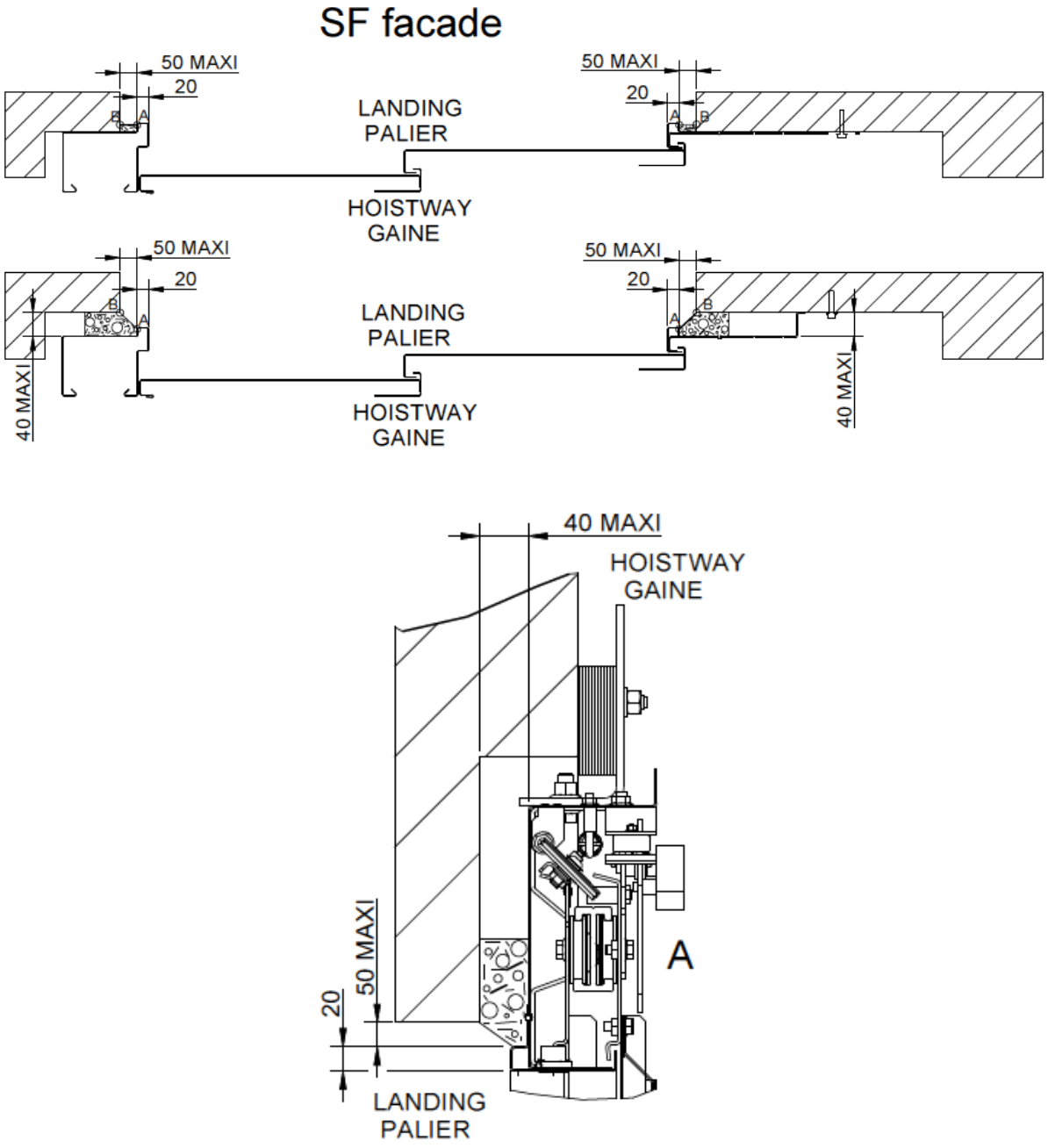
6.5.3.2 Landing mounting

6.5.3.2.1 NF facia

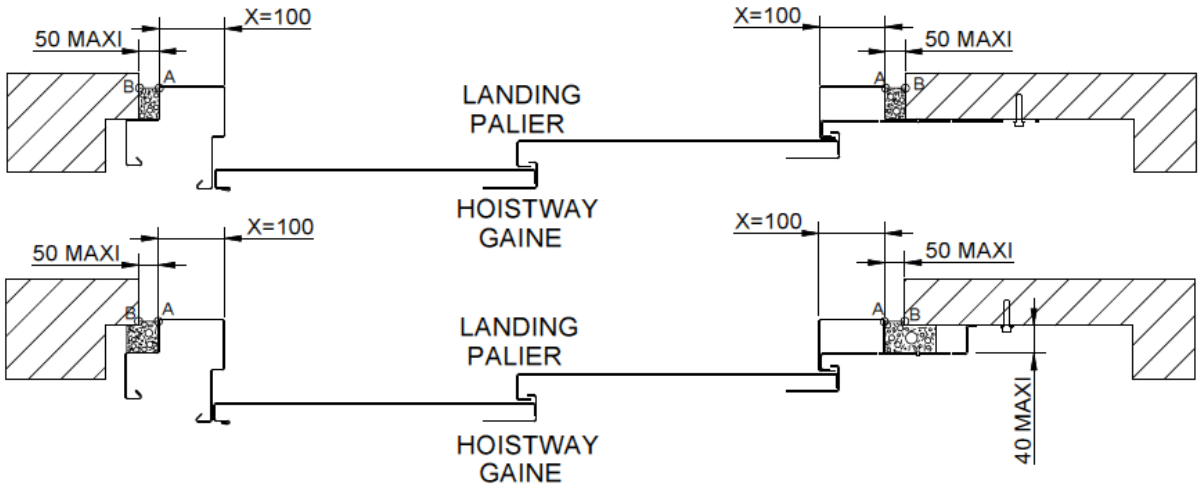


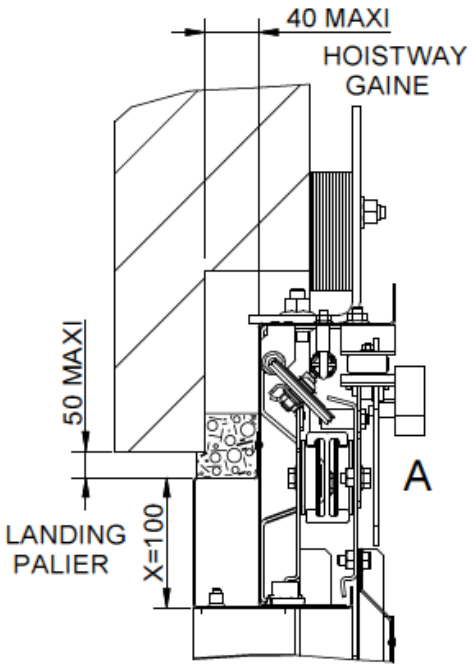


6.5.3.2.2 SF facia

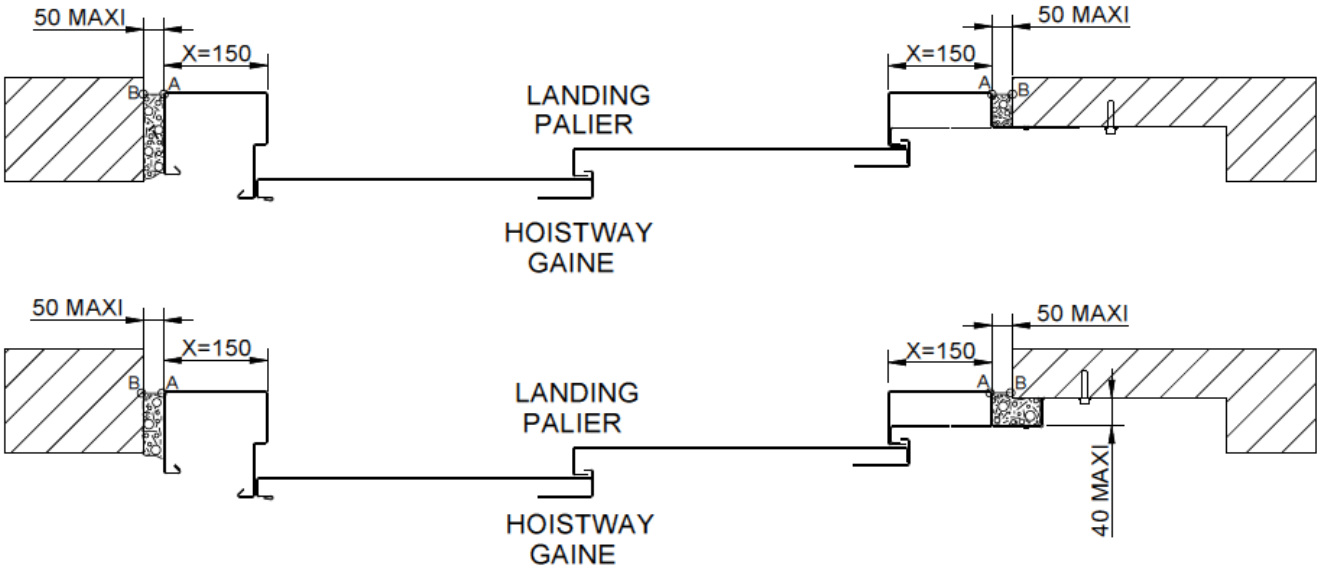


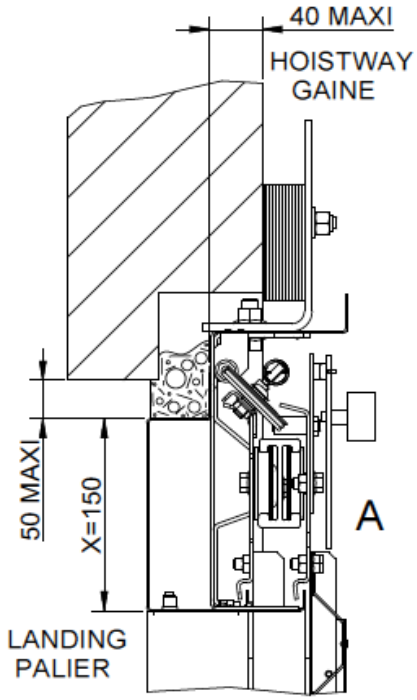
6.5.3.2.3 MRF 100 facia





6.5.3.2.4 MRF 150 facia





7 RESULTS

7.1 TEST N°3485-44-50

7.1.1 Integrity

7.1.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : **ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)**
Cause of the limitation **Test stopped by Requester**

7.1.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : **Vertical opening passage = 2 415 mm**

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.1.1.1 Sustained inflammation

Duration : **ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)**
Cause of the limitation **Test stopped by Requester**

7.1.1 Thermal insulation

Time : **NONE**
Cause of the limitation **Element not ensuring thermal insulation.**

7.1.2 Radiation

Duration : **ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)**
Cause of the limitation **Test stopped by Requester**

These results were obtained based on maximum levels.

For the description and results of this test, refer to the classification report N° 3485-44-50.

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7.2 TEST N°3634-44-50

7.2.1 Integrity

7.2.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : **ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)**
Cause of the limitation **Test stopped by Requester**

7.2.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : **Vertical opening passage = 2 415 mm**

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.2.1.3 Sustained inflammation

Duration : **ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)**
Cause of the limitation **Test stopped by Requester**

7.2.2 Thermal insulation

Time : **SEVENTY NINE MINUTES. (79 min)**
Cause of the limitation **Average temperature elevation > 140°C**

7.2.3 Radiation

Duration : **NONE**
Cause of the limitation **Not measured**

These results were obtained based on maximum levels.

For the description and results of this test, refer to the classification report N° 3634-44-50.

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7.3 TEST N°3643-44-50

7.3.1 Integrity

7.3.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : **ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)**
Cause of the limitation **Test stopped by Requester**

7.3.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : **Vertical opening passage = 2 415 mm**

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.3.1.3 Sustained inflammation

Duration : **ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)**
Cause of the limitation **Test stopped by Requester**

7.3.2 Thermal insulation

Time : **NONE**
Cause of the limitation **Element not ensuring thermal insulation.**

7.3.3 Radiation

Duration : **ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)**
Cause of the limitation **Test stopped by Requester**

These results were obtained based on maximum levels.

For the description and results of this test, refer to the classification report N° 3643-44-50.

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7.4 TEST N°3667-44-50

7.4.1 Integrity

7.4.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : **ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)**
Cause of the limitation **Test stopped by Requester**

7.4.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : **Vertical opening passage = 2 415 mm**

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.4.1.3 Sustained inflammation

Duration : **ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)**
Cause of the limitation **Test stopped by Requester**

7.4.2 Thermal insulation

Time : **NONE**
Cause of the limitation **Element not ensuring thermal insulation.**

7.4.3 Radiation

Duration : **ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)**
Cause of the limitation **Test stopped by Requester**

These results were obtained based on maximum levels.

For the description and results of this test, refer to the classification report N° 3667-44-50.

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8 ANALYSIS

Upon completion of the different classification tests performed to cover any variability in this range, the following comments were issued:

- This range concerns only non-insulated doors in the TLD configuration, with 2 lateral opening leafs, NF, SF, MRF100 and MRF150 facade.
  Reference test N°3634-44-50 was performed on MRF100 façade.
  Reference tests N°3485-44-50 and N°3667-44-50 were performed on MRF150 façade.
  These version were chosen by the laboratory as the most unfavorable Vs NF and SF façade.
  (Indeed, MRF150 and MRF100 are the worse case because more fire exposed. MRF 100 building interfaces are the same as NF and SF façade)

- Closing colum (mainly metal sheeted) could also containing all lift electrical commands & control functions. (MRF150 only) These version was also chosen by the laboratory as an unfavorable configuration. This version was performed in order to confirm E 120 fire classification. (Reference test N°3667-44-50) All the descriptions, combustible masses, cables outputs and detailed descriptions will hence not be repeated in this range report. (See range report N°2614-45-50 attached to the PRIMA TLD 900-R door range, also addendum N°2710-46-50 attached to the PRIMA-S TLD MRF 150 door range)

- Building fixing types, landing (Door inside the wall thickness) and steel (Door installed in the Hoistway) mounting give us the same mecanical resisting towards door. The hoistway mounting representing the majority of door mounting, we have decided to privilege it for tests. Aditionnaly, fire resistance tests, following laboratory recommandation, were performed on worse building interfaces cases. (40 mm from the wall, maximum gaps with sealing finition)

- 3 different types of finish are available: Stainless steel, pre-peint steel and Skinplate steel.Stainless Steel has a higher temperature expansion coefficient than steel (approximately 17 x 10-6 K-1 vs. 12 x 10-6 K-1). Therefore, during a fire, stainless steel expanding more than steel, greater constraints will be created within the structure (Labyrinth, screws, etc…) During the reference fire resistance tests carried out on stainless steel landing doors, satisfactory leakage levels were reported. This leads us to believe that the same level of leakage will be reached with pre-peint steel and Skinplate steel doorsets.

- The key switch option (door unlocking detection) which requires the uses of an additional electrical switch was tested in the reference test N°3667-44-50.

- The unlocking device based on a twine option was tested in the orientation test N°3684-38-50. (Unsignificant combustible mass)

- Many tests performed previously by Door Test Center and EFECTIS France laboratories in similar configurations in Pre-paint steel or Skinplate steel, have shown that this type of steel radiates more than stainless steel. This observation requires to limit the classification obtained by this range of doors according to the different finishes possible (refer to § 10).

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- Both types of fasteners of the door units: by JORDAHL screws and rails and by expansion dowels, as well as the different fastening brackets described in paragraph 6.2.1.were tested on door units with similar configurations during the previous tests. No noticeable difference in mechanical behaviour was noted on these levels until the end of the tests, i.e. 122 minutes.

- All the landing door fixtures are identical to the PRIMA TLD E120 door range (See range report N° 07-A-114 / EFECTIS France). The E120 fixture types were successfully fire rated up to 120min.

- Call integrated button options (Ø 28 & Ø 36) are identical to the PRIMA TLD E120 (Addendum N° 09/2 – EFECTIS France) and SENCIA door range. (Range report N° 2746-45-50) The E120 fixtures types were successfully fire rated up to 120min.

- S-Line 2 aesthetic option (buttons & display) was performed on an identical door range MRF 150 (See Addendum N°2762-46-50) The E120 fixture types were successfully fire rated up to 120min.

- Cladding option (additional steel lining fixed by glue on the fire exposed side of the leaves doors) remains valid if applied following recommendation described in the §6.4.3 of this present document.

- Low and stable leakage rates measured on the 4 tests of reference.
- No flame observed on the 4 tests of reference.

The goods results of leakage rates obtained during these differents tests allow to validate the OPH door up to 2415mm, based on correction factor defined in §16 of EN81-58:2003 / Direct field of application.

The reference fire resistance tests described within this appraisal report as well as the analysis written above, lead us to conclude to the classification integrity performance, as noted in § 9 within this appraisal report.

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9 CLASSIFICATION

9.1 CLASSIFICATION REFERENCE

This rating was made in compliance with paragraph 17 of the EN81-58:2003 standard.

9.2 CLASSIFICATION

Based on classification tests performed, combinations of performance and class parameters are the following:

9.2.1 Pre-painted steel or Skinplate doors

E	I	W		(t)
E	**-**	**W**		**30**
E	**-**	**-**		**120**

9.2.2 Stainless steel doors

E	I	W		(t)
E	**-**	**W**		**60**
E	**-**	**-**		**120**

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10 DIRECT FIELD OF APPLICATION

10.1 DIMENSIONAL VARIATIONS AUTHORIZED

The following rules do not apply to the radiation criterion. (W)

W classification is only valid for dimensions ≤ door tested, as OP900 / OPH2100.

If E120 classification is requested:

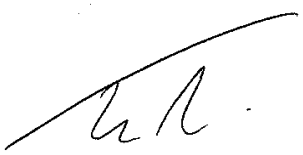
	Door's clear opening dimensions	
	Minimum	Maximum
Width (mm) OP	630	1170
Height (mm) OPH	< 2100	2415

10.1 SUPPORTING CONSTRUCTION

According to paragraph 16 of the EN 81-58:2003 standard, the classifications indicated in paragraph 12 of this range report are valid for all supporting constructions with a density equal or greater than 600 kg/m^3 and thickness equal or greater than 100 mm.

Issued in GIEN, on 22 DECEMBER 2017

Jean-Pierre TANTIS
Door Test Center
Department Head



Thierry BONGIBAULT
Door Test Center
Fire Expert

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